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June 1, 1950

Dear Joshua:

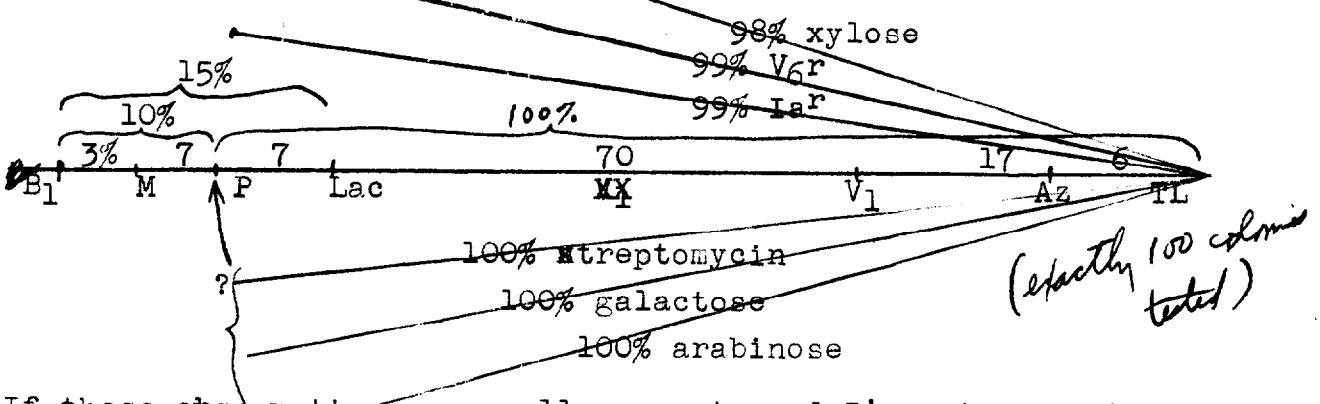
My year of research is ended, and I am ashamed to say I still have nothing fit to publish. At best, I might write a couple of notes for Evelyn Witkin's sheet telling what I did and pointing out the possibilities of further ivestigation along those lines.

I never got round to trying Azide and Iodoacetate for screening out complementaries. Instead, I tried Azide in thiamine-free medium, thinking it was a sure bet. I cannot account for the failure unless, as seems possible, the azide resistant, B_1^- parent grew as fast in the complementary plates as the azide resistant, B_1^- complementaries; at the end of two days there was an abundant growth of very small, uniform colonies, certainly not mainly complementaries.

I plan to describe my three successful experiments, mention the unsuccessful ones, and discuss the possible interpretations and pitfalls.

Another matter that I have become involved in is the question of linear vs non-linear linkage. Your suggestion of "haplo-lethal deletions" (equivalent to paired incompatible genes linked to certain loci?) seems sufficient to explain the principle deviations from random segregation that I haveobserved, but I now have very sparse data on another phenomenon, still very uncertain:

I believe you do not usually test a whole batch of recombinants for many markers together. I have been doing this, and in general it has given very good confirmation of linearity for most loci: when a crossover can be located between two known markers, all other markers cross over just as expected. But not quite all; in one experiment where we selected PTL prototrophs, three traits that acted as though very close to proline crossed over a total of 4 times with it. But the three traits all crossed over independently of each other, and in none of the four cases did proline cross over with lactose or methionine, which my data locate on each side of proline. It suggests the following type of diagram:



If these observations were allcorrect, and I'm not sure they are, the most startling thing is that V_6 and Ia behave conventionally among MTL prototrophs, and can actually be located near proline.

In any case, I think a lot of valuable information is to be

gained from this kind of linkage analysis, and since it is the kind of problem many graduate students like, it might be good if Evelyn would print something about it. What do you think?

I deeply appreciate your repeated invitations to me to continue in bacterial genetics, but they tempt me chiefly because they suggest a secure future. My real interest still is in human genetics, and at this stage I can't see myself going into anything else. Of course I shall always follow the developments in K-12 with strong personal interest, and I hope I shall have many more contacts with you as well as with Bernie. As for the meetings next September, I doubt if my schedule can be interrupted , since I shall be carrying some responsibilities in the hospital at that time.

I have a little more linkage data to work up, and then I'll try to summarize all my findings clearly, either to deposit the information with you or for Evelyn Witkin to print.

Yours,

Gordon